HABS No. CA-1543-F

MARE ISLAND NAVAL SHIPYARD, CHEMICAL CLEANING FACILITY
(Building No. 814)
South of 14th Street, Between California and Railroad Avenues
Vallejo
Solano County
California

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

Historic American Buildings Survey
National Park Service
Western Region
Department of the Interior
San Francisco, CAlifornia 94107

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HISTORIC AMERICAN BUILDING SURVEY

MARE ISLAND NAVAL SHIPYARD
CHEMICAL CLEANING FACILITY (BLDG. NO. 814) HABS NO. CA 1543F

Location:	North of 14th Street, between California and Railroad Avenues Mare Island Naval Shipyard Vallejo Solano County California United States Geological Survey (USGS) Mare Island Quadrangle (7.5) Universal Transverse Mercator Coordinates: 10.564,541.756 mE - 4216205.134 mN
Present Owner:	Department of the Navy Mare Island Naval Shipyard Vallejo, California 94592-5100
Present Use:	Originally a chemical cleaning facility, the facility is currently no longer in use. Demolition has been proposed as part of environmental site clean-up
Statement of Significance:	Constructed originally as a facility for the cleaning of battle damaged machinery and equipment off of Navy ships and submarines, it played a role in the last year of World War II in Mare Island's mission of repairing damaged vessels.

Prepared By:	Mr. Steven R. Black
Title:	Architect/General Engineer
Affiliation:	Mare Island Naval, Staff Civil Engineer Department Facilities Planning Division Code 913

PART I - HISTORICAL INFORMATION:

A. Physical History:

1. Date of Erection: Building 814 was built in 1945 to provide a facility for the chemical cleaning of battle damaged machinery and components coming off of Navy surface ships and submarines. The construction period is established by review of shipyard records, a period facility map(June 1946) and the approval date of the earliest original construction drawing (September 29, 1944). The facility is located north of 14th Street, between Railroad and California Avenues. The shipyard's main machine shop is located immediately to the north.

2. Architect: The design for the building was accomplished by Clyde C. Kennedy, Consulting Engineer, San Francisco, California. Approval of the design for the Navy was by Captain F. C. Bedell (CEC, USN), Public Works Officer of the Shipyard from April 1943 to August 1945.

3. Original and Subsequent Owners: Building 814 was constructed as the result of Congressional appropriation on Federal land under cognizance of the Department of the Navy. Mare Island Naval Shipyard is recorded (July 12, 1978) as US Government property with the Office of the Solano County Recorder, Fairfield, California as Parcel No. 67-010-030 in Book 56594 of these records. Title and ownership of this building has rested with the Department of the Navy since originally constructed.

4. Building, Contractor(s) and Suppliers: No records were found to indicate whether the building was constructed by commercial contractor or by shipyard forces. The Property Record Card (200788) for the facility makes no reference to a specification or contract number. Considering that the shipyard had a civilian work force of over 40,000 by the end of the war, it is highly probable that construction was done by shipyard personnel. The small size of the facility and the basic construction style also supports this premise, as the project would not have been a difficult or lengthy undertaking.

5. Original Plans and Construction: Photographs CA-1543F-6 through CA-1543F-8, CA-1543F-11 through CA-1543F-14 and CA-1543F-16 through CA-1543F-17 show details of original construction. Drawings showing original construction as well as subsequent modifications are on file at Mare Island Naval Shipyard, Staff Civil Engineer Office Plan Files.

6. Alterations and Additions: Alterations and modifications have been few since this building was built; the facility looks much as it did during World War II. Alterations and improvements completed were the installation of a CO2 fire protection system with automatic covers for the vats done in 1945, the installation of tank ventilation on three of the five tanks in 1951, floor repairs in 1961 and completion of general repairs with improvements to electrical and piping systems completed in 1978. Also completed in 1978 was the connection of the floor drains into the newly constructed shipyard industrial waste collection and treatment system. Prior to 1978, a sixth tank was installed in the south bay, the railroad tracks having been removed. Photographs CA-1543F-9, CA-1543F-10, CA-1543F-15, CA-1543F-18 and CA-1543F-19 show details of alterations made.

The main components of the tank ventilation system are located on a separate concrete pad located immediately west of the building.

A small tank was placed to the north of the building to collect chemical wastes after the shipyard's industrial waste system was shut down in the mid-1980's.

B. Historical Context: Mare Island Naval Shipyard was established in 1854 by then Commodore David Glasgow Farragut as the United States Navy Yard, Mare Island. This was the first Navy shipyard established on the west coast by a still young nation. Throughout the decades thereafter, the Mare Island Naval Complex has been intimately connected with military history, development of industrial design, ship construction, repair and conversion and with the lives of men and women significant in U. S. History. With its establishment, Mare Island Naval Shipyard symbolized both the culmination of U.S. expansionist desires to obtain and hold California as well as to protect and extend its political and economic interests throughout the Pacific region. During the War Between The States, Mare Island was able to maintain the small Navy fleet on the west coast needed to patrol the Isthmus of Panama and San Francisco Bay where the threat existed that Confederate raiders might seize the ships carrying gold to finance the war effort of the North. During the Spanish-American War, Mare Island was the base that repaired ships of the Asiatic Squadron and became the refuge for the sick and wounded sailors from battles in the Philippines. During World War I, the base served as a training base for Marines and Medical Corpsmen who did meritorious service the Europe. During World War II and later years, the shipyard built a large number of ships, submarines and landing craft as well as repairing and overhauling ships and submarines of the U.S. Navy and its allies.

In the century and a half of its existence, Mare Island has built 513 vessels, beginning with the Saginaw in 1859, and repaired/overhauled thousands more. Mare Island built the Civil War monitor Monadnock, the collier Jupiter (later to become the Navy's first aircraft carrier Langley), dozens of destroyers, escort and amphibious craft, submarine tenders, tankers and submarines. Large capital ships constructed here included the heavy cruisers San Francisco and Chicago and the battleship California, the only Navy battleship built on the west coast. And finally, beginning in 1954, Mare Island Naval Shipyard entered the atomic age by beginning the construction and overhaul of nuclear powered ships and submarines, thus completing the evolution of propulsive power from canvas to coal, from diesel oil to the atom.

Mare Island Naval Shipyard began repairing battle damaged ships prior to the United State's entry into World War II. Beginning in June of 1941, the British cruisers HMS Liverpool and HMS Orion were repaired, somewhat surreptitiously, at the shipyard. It is certain that valuable experience in repairing damaged ships was gained during this period. One area where knowledge was gained had to be in the methods of cleaning machinery and components of burned paint, hardened grease and oils, etc.

The first United States ships to be repaired after the Japanese attack on Pearl Harbor on December 7, 1941 were the USS Pyro (ammunition ship), the USS Helena (cruiser), and electric motors and other equipment off of the USS Pennsylvania (battleship). Shafting and other machinery salvaged off of the sunken destroyers Cassin and Downes were also restored to a useable condition. Later on such ships as the cruisers USS San Francisco, USS Chicago, USS Indianapolis, USS Minneapolis and USS Denver were repaired. All this was accomplished along side of the new construction of surface ships and submarines in support of the war effort. The last ship to enter the shipyard to have battle damage repaired was the USS Curtiss (aircraft tender). In all, 1,227 ships and submarines (only a few submarines as they rarely made it back after being damaged) were repaired at the shipyard.

Early in the war, the need for ships and submarines in the Pacific theater was so great that repairs were often done in forward deployment areas. By necessity, these repairs were often "jury rigged" or just enough to keep the vessels sea worthy and operational. Capital ships, such as aircraft carriers and battleships, often the prime targets in an engagement with the enemy, were sent to the larger shipyards for repair, such as Puget Sound Navy Yard, Hunters Point Navy Yard or Long Beach Navy Yard. As the war progressed and more and more ships became available for duty through aggressive new construction

programs throughout the United States, those vessels that had seen extensive service with minimal overhaul early in the war returned to stateside shipyards for more extensive repair and retrofit. It was about this time that construction of Building 814 occurred, probably at a time when quantities of machinery components that needed cleaning increased dramatically. The functions performed within Building 814 were very closely linked to those of the main machine shop on Mare Island, Building 680, located immediately north of 814.

PART II - ARCHITECTURAL SURVEY:

A. General Statement: Building 814 is a rectangular, wood framed, metal sided building sitting with the long direction roughly in the north-south direction. A bridge crane is located in the interior with the top of the crane rail at 23 feet above the concrete floor. On the east elevation, the wall is open from the floor slab to a height of 21 feet above the slab. The long dimension of the building is subdivided into five equal column bays.

1. Architectural Character: The general character is that of a small, industrial style building considered fairly typical of the period. The building does not exhibit any architectural style or detailing that would result in its being considered historically significant.

2. Condition of Fabric: The overall condition of this building is considered fair to poor. The facility no longer functions as a cleaning facility. The site has been fenced off to restrict unauthorized access. At the time of writing this report, most of the vats and elevated wood framed deck system around the vats have been removed to support environmental clean-up. Demolition of the entire structure is proposed as part of the overall shipyard cleanup and restoration program.

B. Description of Exterior:

1. Overall Dimensions: Building 814 is a rectangular building measuring approximately 82 feet in the north-south direction and approximately 37 feet in the east-west direction. The height of the building is approximately 36 feet to the top of the ridge.. On the east elevation, the wall is open from the floor slab to a height of 21 feet above the slab. The long dimension of the building is subdivided into five equal column bays. Originally, railroad trackage extended into the last bay to the south. Prior to 1978, the railroad tracks were removed and a sixth vat (4 feet by 22 feet by 4 foot deep) was installed and the raised

wood platform extended to encompass the new vat. The other four bays were occupied by five tanks (vats) sitting on the building floor which used to hold the various solvent solutions, chemicals and wash water used in the cleaning processes.

2. Foundation: Building 814 is supported on timber piles placed along the perimeter wall line to support building wall columns and the bridge crane rail beam support columns. The timber pile terminates at an elevation of 104 feet with a 12 inch diameter steel splice, approximately 3 feet long, extending another 1-1/2 feet. This supports a transition to reinforced concrete as the upper 3-1/2 feet of the piling. Pilings terminate into individual reinforced concrete pile caps measuring 4 feet by 6 feet by 4 feet deep. The exterior wall is in turn supported by a 15 inch by 24 inch deep perimeter grade beam poured integral with the 6 inch thick reinforced concrete floor slab.

3. Walls: Exterior walls are sheathed in galvanized, corrugated sheet steel siding. This material is a product common to light industrial type construction. No interior walls were constructed within the building. A small number of sheets were replaced in 1978 as part of general building repairs.

4. Structural System/Framing: Building 814 is a wood framed building using fairly standard construction techniques. The long dimension (north-south) is subdivided into five equal bays. The roof structure is supported by the north and south end walls, with the ridge supported by a 12 inch steel wide flange column. Wood columns, 8 inch by 12 inch in section, support wooden roof trusses in the four interior bay sections. Trusses are "Flat Pratt" in design with three bays to each side of the building centerline. Connections are bolted utilizing split ring connectors. The crane rail beam is supported by 10 inch by 12 inch wood columns placed adjacent to and to the interior of the wall columns. Uniformly spaced 3 inch by 8 inch wood girts provide direct support for the metal wall sheathing. Diagonal 1-1/4 inch tie rods are located in the north and south end walls to provide lateral stability.

5. Porches, Stoops, Balconies, Bulkheads: None present.

6. Chimneys: None present.

7. Openings:

a. Doorways and Doors: None present.

b. Windows and Shutters: The only windows are on the west elevation. Centered in each of the five bays making up the long direction of the building are a pair of wood framed awning type windows placed side-by-side, creating a 6 foot by 6 foot overall opening. Each window has an upper and lower opening section, each section in turn divided into two panes by a horizontal mullion. Located immediately below the roof line on the east and west elevations are a series of wooden louvers, three per bay on each elevation (total 15 per elevation).

8. Roof:

a. Shape, Covering: The roof shape is essentially flat (or could be considered a flat gable roof) defined by the slope of the top chord of the roof trusses. The roof is sheathed in 2 inch diagonal sheathing and covered with a 4-ply built up tar and gravel roof. Five gravity flow roof top ventilators are located along the ridge line, centered over each bay. Subsequent to 1978 (no date), two of the vents were removed and capped off.

b. Cornice, Eaves: The roof line is defined by a simple 2 inch by 10 inch fascia with a 1 inch by 4 inch cleat attached.

c. Dormers, Cupolas, Towers: When originally constructed, a single turbine ventilator was located over each bay and centered on the ridge line.

C. Description of Interior:

1. Floor Plans: Previously discussed.

2. Stairways: None present.

3. Flooring: The floor of the building is a concrete slab. Original construction included a wood framed platform, sitting 2 feet above the concrete floor, placed around the five tanks.

4. Walls and Ceiling Finish: The interior side of the exterior walls is exposed corrugated galvanized sheet siding. Interior of the ceiling is exposed diagonal sheathing, unpainted.

5. Openings: None of significance.

6. Decorative Features and Trim: None of significance.

7. Hardware: A 10 ton bridge crane spans the short direction of the building providing weight lifting capability to each of the five bays.

8. Mechanical Equipment.

a. Heating, Air Conditioning, Ventilation: Originally, ventilation was provided by natural air flow through the windows, louvers and roof vents. Prior to 1978 (no date), two exhaust fans were installed in the north elevation opposite the vat in the north bay at a height of 10 feet above the concrete floor. In 1951, ventilation was installed to the three middle tanks of the original five. This system was a side-draft system with ducts running under the raised platforms and exiting through the west elevation. Extraction of fumes was by means of a 25,000 CFM fan run by a 7.5 horsepower/440 volt/3 phase motor. All ducting was of 16 gage galvanized sheet metal. The motor and fan were mounted on a small concrete pad (6 foot by 10 foot) adjacent to the west elevation. A 10 foot long exhaust stack vent exhausted to the atmosphere above the level of the windows.

b. Lighting: Original lighting consisted of two industrial grade incandescent fixtures installed on pendent drops in each bay. These are still in place. Prior to 1978 (no date), three exterior flood lights were installed on the roof eave on the east elevation.

c. Plumbing: Plumbing within this building consisted of fresh water for emergency shower, washdown and for filling the one rinse tank, compressed air services, steam and condensate lines to provide heating capability to each of the five tanks, overflow and floor drains, and piping connected to the solvent tanks to provided for filling from delivery trucks and to provide for drainage to a sump tank.

9. Original Furnishings: Original furnishings consisted of the five tanks previously discussed.

D. Site:

1. General Siting and Orientation: This building sits in a north-south direction immediately south of the main shipyard machine shop, Building 680. Area around the building is asphalt paved. Site sketches are included

herein showing site conditions in June, 1946 and at the time of preparation of this report.

2. Historic Landscape Design: None present.

3. Outbuildings: None present.

PART III - SOURCES OF INFORMATION:

A. Architectural Drawings: Included in the photographic documentation are photocopies of selected record drawings for Building 814. These show original construction details as well as significant modifications completed. All drawings are in the possession of the Staff Civil Engineer at Mare Island Naval Shipyard.

B. Historic Views: Research of shipyard Photo Lab records and Historian's office files found no direct historical photos of the building. Aerial photographs have been taken of Mare Island over the years; however, they do not show this building in sufficient detail to warrant inclusion in this report.

C. Interviews:

1. A brief interview with Ms. Sue Lemmon, Shipyard Historian, on August 29, 1994 was held to determine the availability of historical documents and photo records.

2. Discussions with Photo Lab staff and a search of photo records were made to locate historical photos of the structure and site.

D. Bibliography:

1. Primary and Unpublished Sources: None

2. Secondary and Published Sources:

a. "Side-wheelers to Nuclear Power-A Pictorial Essay Covering 123 Years At The Mare Island Naval Shipyard" (1977); Sue Lemmon and E. D. Wichels; published by Leeward Publications, Inc.; Library Of Congress Catalog No. 77-90050.

b. "A Long Line of Ships, Mare Island's Century of Naval Activity in California" (1954); Arnold A. Lott, LCDR, USN (Retired); published by the George Banta Publishing Company.

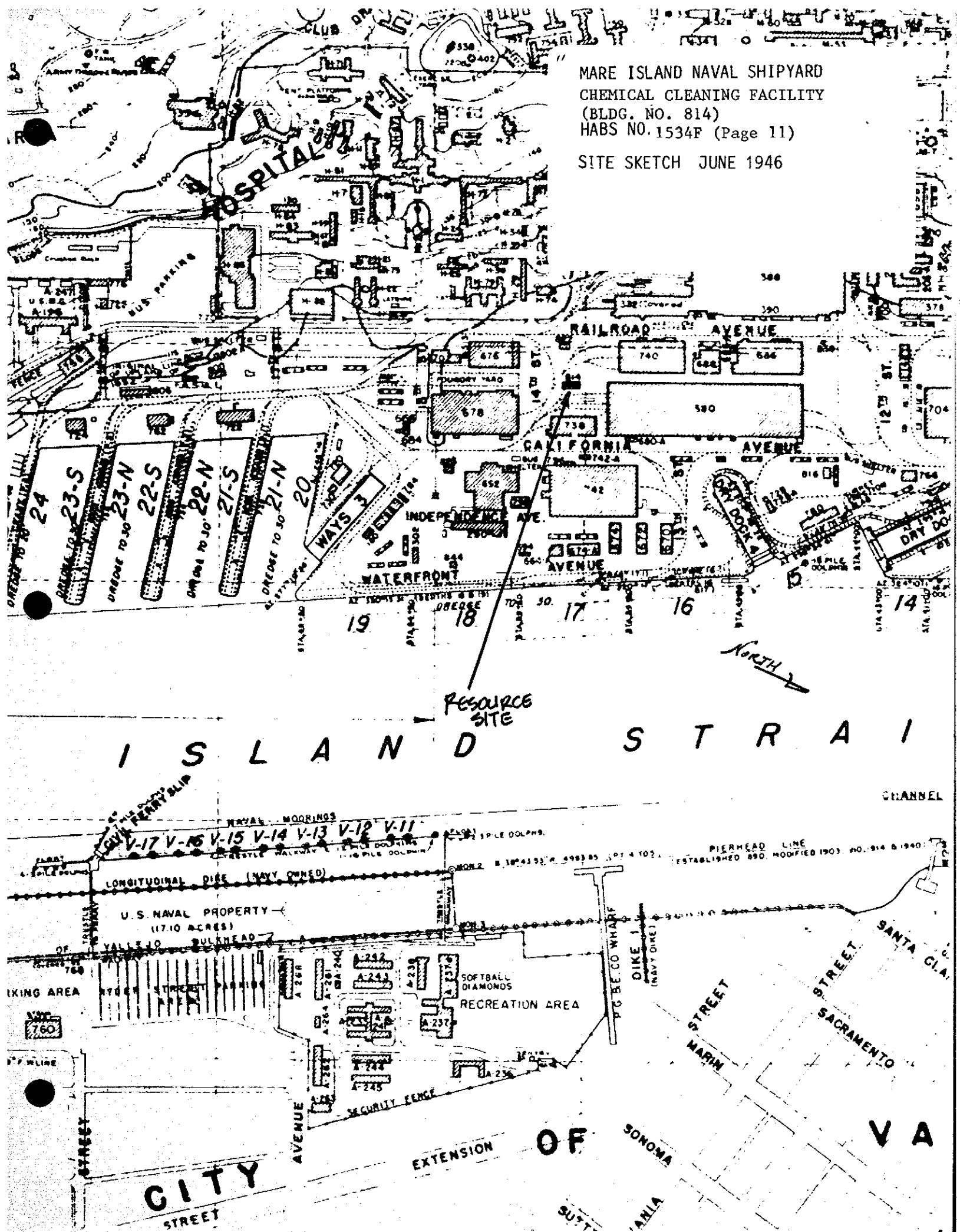
E. Likely Sources Not Yet Investigated: None recommended.

F. Supplemental Materials: None

PART IV - PROJECT INFORMATION:

Building 814 is scheduled for demolition as part of the environmental restoration and clean up at the resource site to remove chemically contaminated soils remaining from the chemical cleaning operations performed in the past in this building.

This survey and documentation has been prepared to comply with mitigation requirements established by a Memorandum of Understanding between the United States Navy, the California State Historic Preservation Officer and the Advisory Council on Historic Preservation executed in 1994.


MARE ISLAND NAVAL SHIPYARD
CHEMICAL CLEANING FACILITY
(BLDG. NO. 814)
HABS NO. 1534F (Page 11)
SITE SKETCH JUNE 1946
HOSPITAL
RAILROAD AVENUE
CALIFORNIA AVENUE
INDEPENDENCE AVE.
WATERFRONT AVENUE
WAYS 3
DRY DOCK 4
DRY DOCK 5
NORTH
RESOURCE SITE
ISLAND STRAI
CHANNEL
NAVAL MOORINGS
V-17 V-16 V-15 V-14 V-13 V-12 V-11
LONGITUDINAL DIKE (NAVY OWNED)
U.S. NAVAL PROPERTY
(17.10 ACRES)
PIERHEAD LINE
ESTABLISHED 890. MODIFIED 1903. NO. 914 & 1940
SOFTBALL DIAMONDS
RECREATION AREA
DIKE 1 (NAVY DIKE)
SECURITY FENCE
EXTENSION OF
CITY
STREET
AVENUE
MARIN STREET
SACRAMENTO STREET
SONOMA
PARKING AREA
760

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MARE ISLAND NAVAL SHIPYARD
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SITE PLAN-AUGUST 1994